

REMARKS

This application has been reviewed in light of the Office Action dated June 4, 2007. Claims 1-20 are presented for examination, of which Claims 1, 10, 19 and 20 are in independent form. Claims 1-3, 5, 7, 10, 12, 14, 16, 19 and 20 have been amended to define still more clearly what Applicants regard as their invention. A substitute specification is submitted herewith in both a marked and a clean version; no new matter has been added. Favorable reconsideration is requested.

The Examiner noted a number of minor informalities in the specification, and objected to the drawing on the ground that it contains reference numerals not mentioned in the specification. The changes made to the specification are believed to address these objections fully, and their withdrawal of therefore respectfully requested.

Claims 19 and 20 were rejected under 35 U.S.C. § 101 as allegedly defining non-statutory subject matter. Claim 19 has been amended to claim a computer-readable medium that stores the program, and to recite that the program comprises a combination of code. Claim 20 has been reworded as kindly suggested by the Examiner. Accordingly, withdrawal of the rejection of these claims under Section 101 is respectfully requested.

Claims 1, 3, 4, 6, 8, 10, 12, 13, 15, 17, 19 and 20 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. patent 6,637,849 (Maltz). In addition, the Examiner rejected Claims 2 and 11 under 35 U.S.C. § 103(a) as being obvious from *Maltz* in view of U.S. Patent 6,480,299 (Drakopoulos et al.); Claims 5 and 14, as being obvious from *Maltz* in view of U.S. Patents 6,058,207 (Tuijn et al.) and 7,102,785 (Tamagawa); Claims 7 and 16, as being obvious from *Maltz* in view of U.S. Patent 5,982,990 (Gondek);

and Claims 9 and 18, as being obvious from *Maltz* in view of U.S. Patent 6,577,826 (Misaizu et al.).

Applicants have carefully studied the prior art and the rejection, but firmly believe that the claims are allowable over the prior art of record, for at least the following reasons.

As is described in the present application, conventional under-color removal (“UCR”) involves completely eliminating from the color-component signals of a pixel whichever non-black component is smallest, the eliminated coloring (and equal amounts of the other color components) being replaced with that amount of black colorant (in addition to whatever other amount of black may be present at that pixel). Various modifications of this process have been proposed, with an eye to improving the appearance of the resulting image under certain conditions that are problematic for conventional UCR processing, but none are fully satisfactory, in the view of Applicants.

According to the aspects of the present invention to which the respective independent claims are directed, a combination of color material data is generated in such manner that the total color material use amount of a plurality of kinds of color materials meets a smooth function for the total color material use amount. Thus, changes in hue or saturation will be reproduced according to a smooth function, and without the discontinuities and pseudo-contours that can occur using conventional systems.

For example, independent Claim 1 is directed to an image processing method of generating color material data for using a plurality kinds of color material to output an image, and comprises steps of inputting an image signal, and of generating a combination of the color material data for the plurality kinds of color materials such that a

total color material use amount of the plurality of kinds of color materials, which is determined according to the combination of the plurality of kinds of color materials corresponding to the inputted image signal, meets a smooth function for the total color material use amount within a range of the image signal that can be inputted.

In contract, *Maltz* relates to a method of trying to avoid kinks in an ink-limit conversion process, in which, if one of plural colors reaches zero at a given pixel, the remaining colors at that pixel are decreased, by multiplying them by a factor less than one. This maintains the colorant ratio, and is intended to reduce hue shifts. More specifically, *Maltz* show that reduced amount of ink is varied according to the respective values of C, M, Y and K and the ink amount is reduced smoothly. However, Applicants submit that nothing has been found, or pointed out, in *Maltz* that would in any way suggest the above-stated feature of Claim 1. In *Maltz*, reduction of the ink amount is performed for the purpose of maintaining the colorant ratio, so as to reduce hue shift, as noted above. Even if this is deemed to provide a way to change *hue* in smooth way, it does not amount to changing the *total color material use amount* smoothly, as recited in Claim 1, nor does it either require or suggest that feature of Claim 1. For at least that reason, Applicants submit that Claim 1 is allowable over *Maltz*.

Each of the other independent claims is an apparatus or a computer-medium claim, respectively, corresponding to method Claim 1, and is believed to be allowable over *Maltz* for at least the reasons stated above with regard to Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a

reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or the other of independent Claims 1 and 10, and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicants respectfully request favorable reconsideration and allowance of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

/Leonard P Diana/
Leonard P. Diana
Attorney for Applicants
Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200